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| 09/389,085      | 09/02/1999  | JOE H. MULLINS       | UNME-0019-1         | 4882             |

7590 09/16/2003  
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EXAMINER

GRIER, LAURA A

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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2644

DATE MAILED: 09/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/389,085

Applicant(s)

MULLINS, JOE H.

Examiner

Laura A Grier

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 19 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1,2,6,7,10,12-15,19,20 and 29 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

- 5) ☒ Claim(s) 28 is/are allowed.
- 6) ☒ Claim(s) 1-2,6,7,10, 12-15, 19,20 and 29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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## DETAILED ACTION

1. The indicated allowability of dependent claim 4 (now cancelled and incorporated into the existing independent claim 1) is withdrawn in view of the rejection set forth below.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. **Claims 14-15 and 29** are rejected under 35 U.S.C. 102(b) as being anticipated by Tanaka.

Regarding **claims 14 and 29**, Tanaka et al. (herein, Tanaka) discloses a bass reproduction speaker apparatus. Tanaka's disclosure (figure 8) comprises a cabinet with an opening wherein has a speaker (71) inversely position within, which reads on a 1<sup>st</sup> speaker; a passive radiator (73a) positioned opposite the speaker within the cabinet, which reads on a passive radiator; and a detection circuit (75) for detecting feedback of the speaker, wherein the feedback of the speaker includes the vibrations and/or motions of the passive radiator, wherein when the speaker vibrates with the confined area of the cabinet it effects the motion of the radiator, and thus when the radiator vibrates the speaker's motion is effected as well; further, Tanaka discloses that the detection may be a sensor such as one of a moving coil sensor, which can constitutes as a speaker sensor coupled to a speaker external diaphragm, which reads on sensor being a speaker. Further Tanaka discloses that this system has a high output of about 100 dB, which provides

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inherent support of sensor having a S/N ratio of about least 100dB, wherein the unwanted tones, and/or other distortions are unlikely to occur (col. 22, lines 18-62, col. 23, lines 7-21 and col. 13, lines 24-34 and 45-48), and as well Tanaka disclose a low-pass filter with a cutoff frequency of 800 hz in the feedback, which provides inherent support of an audio system with a feedback of 30 to 50 dB and a frequency between 15 to 300 Hz, wherein, Tanaka's system implies that the frequency may range from 0 to 800 Hz.

Regarding **claim 15**, Tanaka and Heirich disclose everything claimed as applied above (see claim 14). Tanaka further discloses the system as one for an audio signal having a frequency of 200 Hz or less (col. 1, lines 11-14), which depicts low frequency, which reads on a low frequency audio system.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 1-2, and 6-7** are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka in view of Heirich et al., U. S. Patent No. 5689574.

Regarding **claim 1**, Tanaka et al. (herein, Tanaka) discloses a bass reproduction speaker apparatus. Tanaka's disclosure (figure 8) comprises a cabinet with an opening wherein has a speaker (71) inversely position within, which reads on a 1<sup>st</sup> speaker; a passive radiator (73a)

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positioned opposite the speaker within the cabinet, which reads on a passive radiator; and a detection circuit (75) for detecting feedback of the speaker, wherein the feedback of the speaker includes the vibrations and/or motions of the passive radiator, wherein when the speaker vibrates with the confined area of the cabinet it effects the motion of the radiator, and thus when the radiator vibrates the speaker's motion is effected as well; further, Tanaka discloses that the detection may be a sensor such as one of a moving coil sensor, which can constitutes as a speaker sensor coupled to a speaker external diaphragm, which reads on sensor being a speaker. Further Tanaka discloses that this system has a high output of about 100 dB, which provides inherent support of sensor having a S/N ratio of about least 100dB, wherein the unwanted tones, and/or other distortions are unlikely to occur (col. 22, lines 18-62, col. 23, lines 7-21 and col. 13, lines 24-34 and 45-48). However, Tanaka fails to specifically disclose the sensor mounting structure comprising a damped elastic mounting structure. The examiner maintains that such a mounting structure was well known in the art.

Regarding the mounting structure, Heirich et al. (herein, Heirich) discloses a speaker(s) - (references 34 and 36) that is mounted within a structure wherein the speaker mounts or isolation means are consist of grommets made of elastometric material (col. 4, line 54-67), which reads on the mounting structure comprised of a damped elastic mounting structure.

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of Tanaka by providing a damped elastic mounting structure, such as an elastometric grommet for the sensor the purpose of damping vibrations which may be caused by the speaker when producing sound.

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Regarding **claim 2**, Tanaka and Heirich disclose everything claimed as applied above (see claim 1). Tanaka further discloses the system as one for an audio signal having a frequency of 200 Hz or less (col. 1, lines 11-14), which depicts low frequency, which reads on a low frequency audio system.

Regarding **claim 6**, Tanaka and Heirich disclose everything claimed as applied above (see claim 1). Tanaka further discloses an amplifier (74) for receiving the feedback as an input from the detection circuit (sensor) which provides support of adjusting the output the speaker of the sensed signal.

Regarding **claim 7**, Tanaka and Heirich disclose everything claimed as applied above (see claim 1). Tanaka further discloses the speaker unit having a width of 46 cm and the passive radiator having a width of 43 cm (col. 21, line 67 and col. 22, line 9-10), which reads on the sensor's maximum width being smaller than the maximum width of the 1<sup>st</sup> speaker.

6. **Claim 12** are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka and Heirich, and further in view of Bertagni et al., U. S. Patent No. 5693917.

Regarding **claim 12**, **Tanaka** and Heirich disclose everything claimed as applied above (see claim 1). However, Tanaka and Heirich fail to specifically disclose electrodynamic planar speaker. The examiner maintains that such a loudspeaker was well known in the art.

Regarding the electrodynamic planar speaker, in a similar field of endeavor, Bertagni disclose a planar diaphragm loudspeaker comprising electromagnetic drivers, which constitutes an electrodynamic planar speaker.

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It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of Tanaka and Heirich by incorporating an electrodynamic planar speaker for the purpose of providing dynamic quality and good efficiency in sound output with improved frequency response and with simpler manufacturing and economical benefits as taught by Bertagni in col. 3, lines 62-67.

7. **Claim 13** is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka in view of Heirich.

Regarding **claim 13**, the Tanaka combination discloses everything claimed as applied above (see claim 1). However, fail to specifically disclose electrostatic planar speaker. The examiner takes official notice of the fact that an electrostatic planar speaker was well known in the art. It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of the Tanaka and Heirich by providing an electrostatic planar speaker for the purpose of employing a small (thin) speaker in size, yet providing good sound quality.

8. **Claim 10** are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka and Heirich, and further in view of Hobelsberger, U. S. Patent No. 5812686.

Regarding **claim 10**, Tanaka and Heirich disclose everything claimed as applied above (see claim 1). However, Tanaka and Heirich fail to specifically disclose acoustic absorbing material within the cabinet. The examiner maintains that such material was well known in the art.

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Regarding the absorbing material, Hobelsberger disclose a device for sensing a loudspeaker, wherein the housing/cabinet of the loudspeaker comprises a sound absorbing material (col. 3, lines 58-60).

Thus, it would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of the Tanaka and Heirich by incorporating an acoustic absorbing material within the cabinet structure of the speaker system for the purpose of absorbing sounds of particular frequencies within the cabinet as desired as taught by Hobelsberger.

9. **Claim 19** is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka in view of Bertagni et al.

Regarding **claim 19**, **Tanaka** discloses everything claimed as applied above (see claim 14). However, Tanaka fails to specifically disclose electrodynamic planar speaker. The examiner maintains that such a loudspeaker was well known in the art.

Regarding the electrodynamic planar speaker, in a similar field of endeavor, Bertagni disclose a planar diaphragm loudspeaker comprising electromagnetic drivers, which constitutes an electrodynamic planar speaker.

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of Tanaka by incorporating an electrodynamic planar speaker for the purpose of providing dynamic quality and good efficiency in sound output with improved frequency response and with simpler manufacturing and economical benefits as taught by Bertagni in col. 3, lines 62-67.



10. **Claim 20** is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka.

**Regarding claim 20**, the Tanaka discloses everything claimed as applied above (see claim 14). However, fail to specifically disclose electrostatic planar speaker. The examiner takes official notice of the fact that an electrostatic planar speaker was well known in the art. It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of the Tanaka by providing an electrostatic planar speaker for the purpose of employing a small (thin) speaker in size, yet providing good sound quality.

***Allowable Subject Matter***

11. Claim 28 is allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 28, the prior art of record is drawn to an audio system comprising a cabinet having a opening in a first wall, a 1<sup>st</sup> speaker for emitting audio, which mounted inversely in the opening; a passive radiator, and a sensor, therein. However, the specifically fails to disclose or fairly suggest the speaker mounting structure having an enclosure mounted on the 1<sup>st</sup> wall and the opening of the 1<sup>st</sup> wall, as of the claimed invention.

***Response to Arguments***

12. Applicant's arguments with respect to claims 1-2, 6-7, 10, 12-15 and 19-20, have been considered but are moot in view of the new ground(s) of rejection.

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The applicant addresses the fact that the rejection set forth by the references of prior art as being obviated by the amendment of the claims. Thus, the examiner has set forth a new rejection in respect to the amended claims in the Office Action above.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura A Grier whose telephone number is (703) 306-4819. The examiner can normally be reached on Monday - Friday, 7:30 am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester W. Isen can be reached on (703) 305-4386.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks


Washington, D.C. 20231

**Or faxed to:**

**(703) 872-9314 (for Technology Center 2600 only)**

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

LAG   
September 2, 2003

  
MIN SUN OH HARVEY  
EXAMINER